Combining handwashing, mask-wearing and social distancing best in preventing COVID-19

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Both self-imposed prevention measures such as hand-washing, mask-wearing and social distancing, as well as government-imposed social distancing can help mitigate and delay a COVID-19 epidemic, according to a new study published this week in *PLOS Medicine* by Alexandra Teslya of University Medical Center Utrecht, Utrecht, The Netherlands and colleagues.

The coronavirus disease COVID-19 has spread to nearly every country in the world and public health policymakers are seeking recommendations on how to delay or flatten its peak. In the new study, researchers developed a computational model of the spread of COVID-19 based on known information about the epidemiology of the disease. They used the model to study the predicted effect of various prevention measures on the number and timing of coronavirus cases.

If a population quickly becomes aware of the coronavirus and effective prevention measures, self-imposed prevention measures can both diminish and postpone the peak number of cases, the model showed. If the efficacy of the self-imposed measures exceeds 50%, a large epidemic can be prevented. If self-imposed prevention measures are slow to catch on, however, they may only reduce the number of cases but not delay a peak. Early implementation of government-imposed social distancing, however, was found to delay but not reduce the peak of the COVID-19 epidemic. Combining self-imposed prevention

measures—particularly if adopted quickly and by a large portion of the population—with government-imposed social distancing has the potential to both delay and shrink the peak of the epidemic. The model did not account for demographics or heterogeneity in contact patterns of different people.

"We stress the importance of disease awareness in controlling the ongoing epidemic and recommend that, in addition to policies on social distancing, government and public health institutions mobilize people to adopt self-imposed measures with proven efficacy in order to successfully tackle COVID-19," the authors say.

In an accompanying Perspective, Professor Yuming Guo of Monash University, Australia, and colleagues write that the new findings are important not only in minimizing initial outbreaks of COVID-19, but in strategies to prevent second epidemics. Improving awareness of self-imposed interventions is critical to prevent wide-spreading epidemics, particularly among ethnic minorities and elderly populations who are at risk. "Many of the self-imposed prevention strategies have very limited impact on the economy but contribute very significantly to epidemic control and are likely to play a very substantial role in control," they write.

More information: Alexander J. F. Davidson et al, Risk of severe maternal morbidity or death in relation to elevated hemoglobin A1c preconception, and in early pregnancy: A population-based cohort study, *PLOS Medicine* (2020). DOI: 10.1371/journal.pmed.1003104

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